

ABSTRACT

In this method, a refrigerant (52) is compressed (32) in a refrigerating circuit, then condensed by cooling in a condenser (44), then expanded in a throttle valve (62) and delivered in the expanded state, in the form of wet vapor (52), to an evaporator (60) that is in thermally conductive contact with a substrate (12) to be cooled. The cooling process thus operates similarly to a liquid cooling process, but with a higher mean logarithmic heat transfer temperature difference, which allows lower temperatures of the substrate (12) to be achieved and makes possible a better heat transition coefficient, since the refrigerant is present as wet vapor. A corresponding arrangement is likewise described.